

PEBB Controller Interface

■ List of Attendees

- Joe Borraccini NSWC
- Roger Cooley NSWC
- Michael Cannell NSWC
- Dave McLaughlin Vector Research
- Dave Flamm SRI
- Tuan Duong Northrop Grumman
- Stephen Lane Northrop Grumman
- Dusan Borojevic VaTech

Represents 2-3
different
manufacturers of
Controller Boards
and Power
Converters

PEBB Controller Interface

- Establish 11/1/99 Demonstration Goal
- Establish 11/1/00 Demonstration Goal
- Establish Serial and Parallel Connectors
- Establish Serial and Parallel Protocols

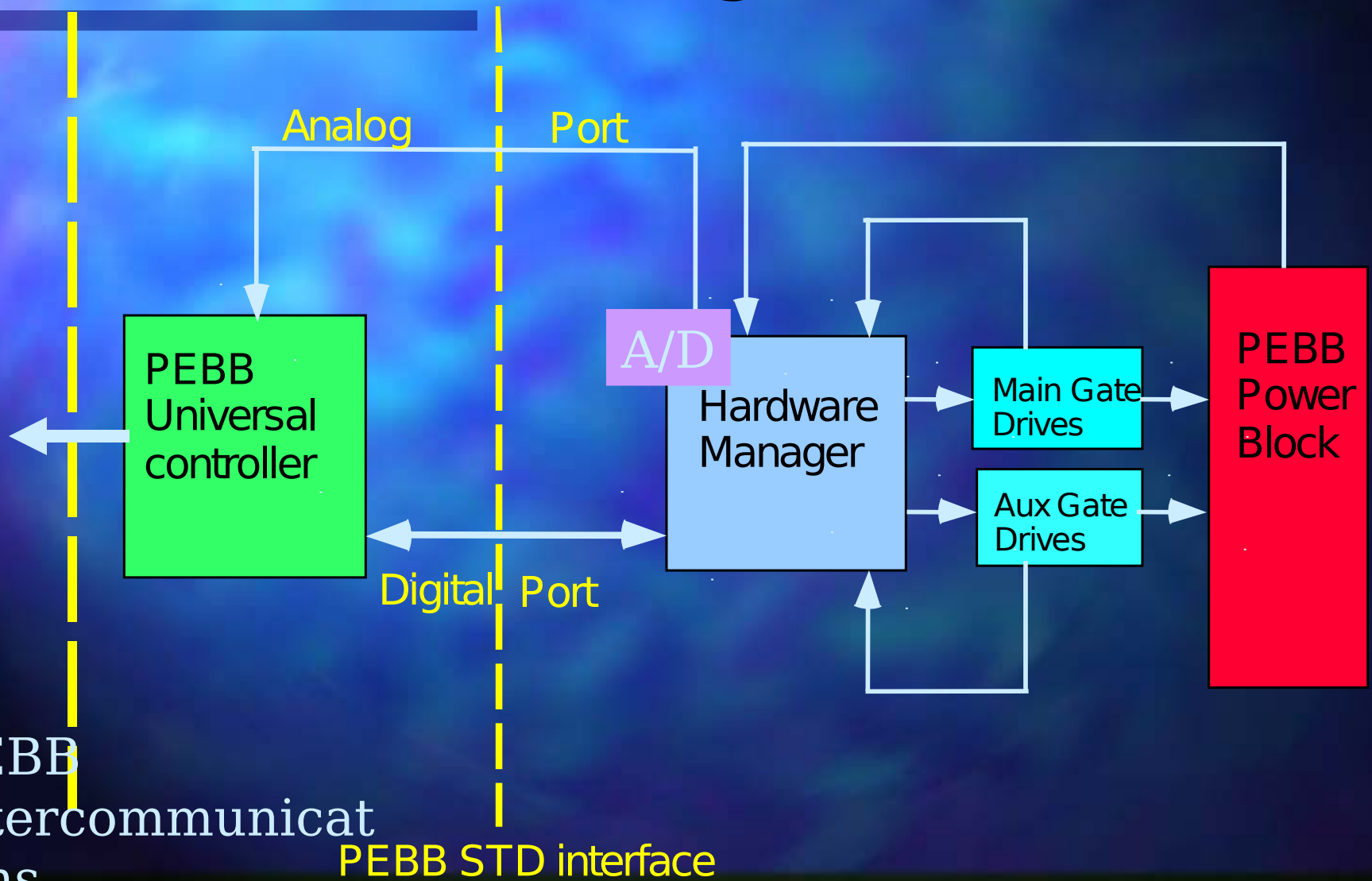
Ground Rules

- Can't Just Plug and Play with Yourself (you'll go blind)
- Publish all controller presentations on Control Interface Forum
- Parallel Connector becomes VME if the number of Bits Required Gets Too Large

Controller Interface Partition

- PEBB Universal Controller
 - Application Specific
 - Hardware Independent
- PEBB Hardware Manager
 - Topology Specific
 - Application Independent

Block Diagram



Communications Interfaces

- PEBB Universal Controller (PUC) to Hardware Manager Interface
- PUC Intercommunications Interface

PUC to Hardware Manager Interface

- Serial Bus
- Parallel Digital Bus
- Analog Interface

PUC Intercommunications Interface

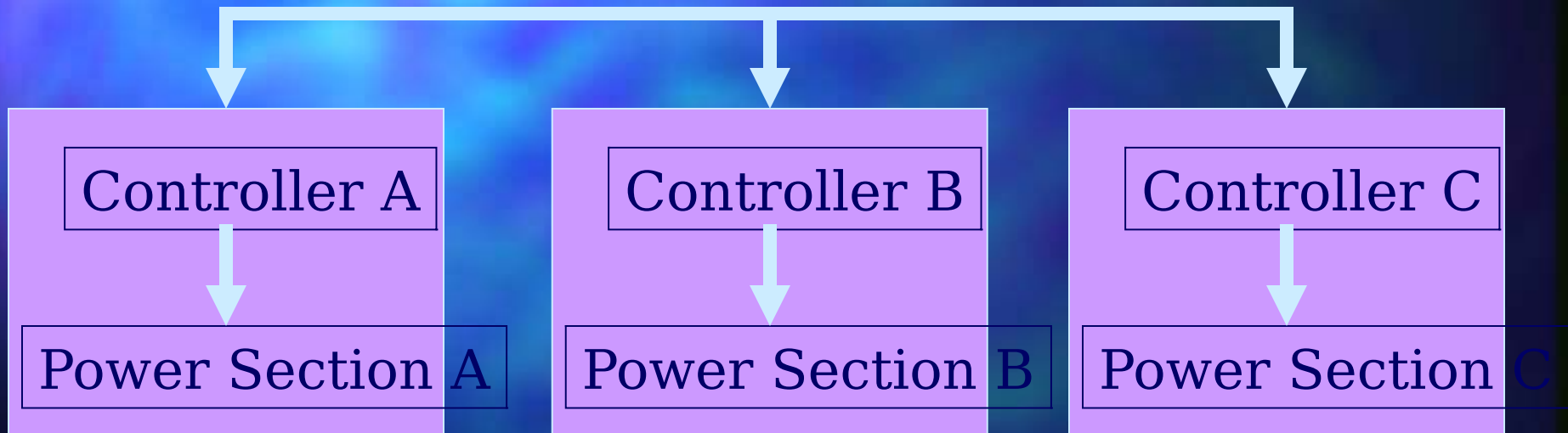
- CANBus
 - Guaranteed Latency Times
 - Limited Lengths
 - Not enough nodes for a ship
- LONWORKS
- Others

November 1999 Demonstration

- Start With Common Serial Bus
 - Establish optical serial link protocol tbd (plastic fiber - Dusan's Concept?)
- Parallel Bus left proprietary to individual designers for now to allow workarounds due to common serial bus limitations
- Minimum Serial Functionality
 - Polling identifier at hardware manager level
 - Open Loop PWM Control

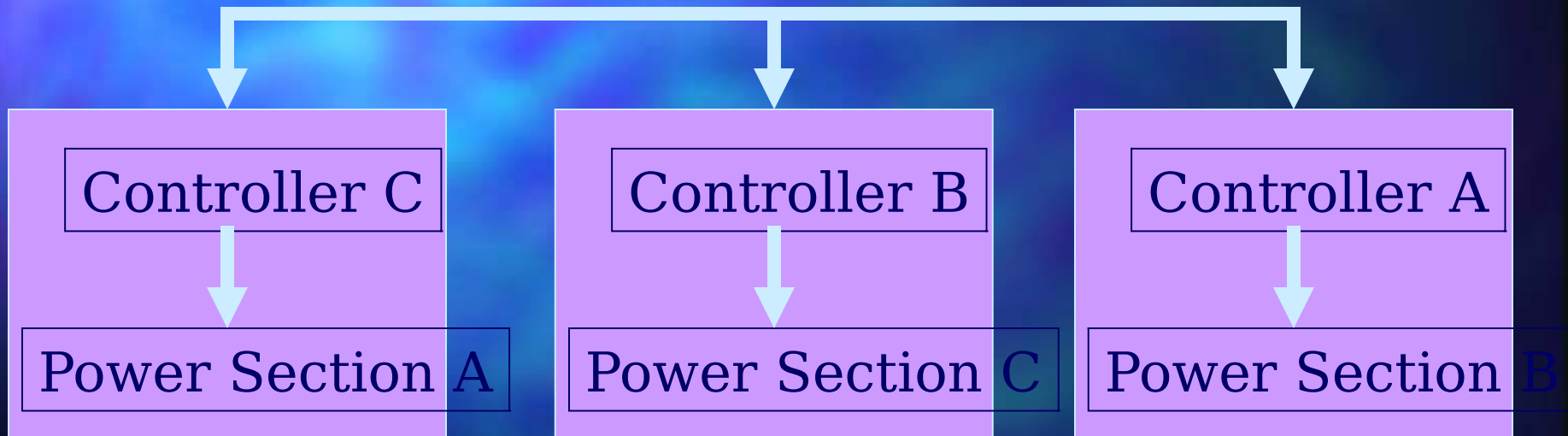
Relationships

- Expect Full Functionality



Relationships

- Expect Partial Functionality



Target Requirements

- PUC to Hardware Manager Interface
 - Control 6 phase legs of power
 - 20kHz Switching Frequency
 - 12 bit resolution
 - A/D
 - Bandwidth
 - Power Quality

Target Requirements

- PUC Intercommunications Interface
 - 1 System Monitor w/ common GUI protocol
 - x Power Converters
 - x Update Rate
 - Develop Demo Definition